

Social Media Use and Perceived Social Isolation Among Young Adults in the U.S.

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Introduction: Perceived social isolation (PSI) is associated with substantial morbidity and mortality. Social media platforms, commonly used by young adults, may offer an opportunity to ameliorate social isolation. This study assessed associations between social media use (SMU) and PSI among U.S. young adults.

Methods: Participants were a nationally representative sample of 1,787 U.S. adults aged 19–32 years. They were recruited in October–November 2014 for a cross-sectional survey using a sampling frame that represented 97% of the U.S. population. SMU was assessed using both time and frequency associated with use of 11 social media platforms, including Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram, Pinterest, Tumblr, Vine, Snapchat, and Reddit. PSI was measured using the Patient-Reported Outcomes Measurement Information System scale. In 2015, ordered logistic regression was used to assess associations between SMU and SI while controlling for eight covariates.

Results: In fully adjusted multivariable models that included survey weights, compared with those in the lowest quartile for SMU time, participants in the highest quartile had twice the odds of having greater PSI (AOR=2.0, 95% CI=1.4, 2.8). Similarly, compared with those in the lowest quartile, those in the highest quartile of SMU frequency had more than three times the odds of having greater PSI (AOR=3.4, 95% CI=2.3, 5.1). Associations were linear ($p < 0.001$ for all), and results were robust to all sensitivity analyses.

Conclusions: Young adults with high SMU seem to feel more socially isolated than their counterparts with lower SMU. Future research should focus on determining directionality and elucidating reasons for these associations.

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INTRODUCTION

Social isolation, a state in which an individual lacks a sense of social belonging, true engagement with others, and fulfilling relationships,¹ is associated with increased morbidity and mortality.² For example, social isolation has been compared to obesity in terms of potential association with negative health effects.³ Social isolation also is known to be associated with unnatural increases in cortisol patterns, and these aberrant patterns can disrupt sleep, immune function, and cognition.^{2,4} Social isolation also affects gene expression, negatively impacting vascular and mental health.^{5,6} In view of these underlying mechanisms, it is not surprising that social isolation can substantially increase the risk for all-cause mortality.⁷

The construct of social isolation includes both objective social isolation—the actual lack of social ties—and subjective social isolation—the feeling of a lack of

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engagement with others.³ These facets of social isolation are related but not the same: One may be objectively isolated but not feel a sense of loneliness, and one may be objectively connected to others but still feel lonely.³ This study focused on subjective social isolation, or perceived social isolation (PSI). This is because the perception of being socially isolated and lonely—and not merely the objective lack of social connection—has been particularly linked to both mental and physical conditions.^{2,4,8,9} The perception of loneliness seems to be linked to poor health outcomes based on both genetic predisposition and epigenetic factors.¹⁰

Recent increases in social media use (SMU) via platforms such as Facebook may provide opportunities for alleviation of PSI. For example, if people feel isolated because of their physical environment, they may be able to access supportive networks online. Similarly, SMU may facilitate forming connections among people by increasing social support.^{11,12} For example, they may help individuals with rare or stigmatizing conditions form support systems that would otherwise be difficult to establish. SMU has increased in particular among young adults, who are navigating critical stages of social identity formation.¹³ As many as 90% of young adults in the U.S. use social media, and the majority of users visit these sites at least once a day.¹⁴

However, it may be that SMU in this population counterintuitively increases PSI. For example, frequent users may substitute SMU for face-to-face social interactions. Similarly, frequent exposure to highly distilled, unrealistic portrayals on social media may give people the impression that others are living happier, more connected lives, and this may make users feel more socially isolated in comparison.¹⁵ In empirical studies, SMU has been associated with constructs such as depression.^{16–19} To the authors' knowledge, however, the association between SMU and PSI has not been assessed in a large-scale study.

Therefore, the aim of this study was to assess associations between SMU and PSI in a nationally representative sample of U.S. young adults. The focus on young adults was appropriate because of the particular increase in SMU in this population.¹⁴ Additionally, PSI often begins during emerging adulthood, when people leave structured environments such as school or home of origin.²⁰ Because of the seeming strength of SMU to provide social support, the hypothesis was that increased SMU would be associated with lower PSI.

METHODS

Study Sample

A nationally representative sample of U.S. adults aged 19–32 years was surveyed regarding SMU and PSI. The sample was drawn from

a research panel maintained by Growth from Knowledge (GfK), which recruited participants via random-digit dialing and address-based sampling.²¹ Using this process, they maintained a sampling frame including >97% of the U.S. population.²¹ GfK's sampling strategy has been shown to be a statistically valid method for assessing a nationally representative sample.^{22,23}

From October 2014 to November 2014, the web-based survey was sent via e-mail to a random sample of 3,048 non-institutionalized adults aged 19–32 years who had consented to participate in a previous study wave that held no criteria except that participants had to be aged 18–30 years at baseline. The current data were collected during the 18-month follow-up of the prior study; only the 18-month follow-up data were used because the social media items were not asked at baseline. Responses were received from 1,787 participants (59%). This represented a strong response rate, because many of the baseline respondents were likely no longer in the GfK panel, which turns over participants every 2 years to prevent cohorts from becoming fatigued by surveys. Additionally, survey weights accounted for non-response and there were no demographic differences between responders and non-responders, both of which attest to external generalizability of the results.

Multiple strategies were instituted by GfK to improve data quality, such as minimizing survey length, reducing the need for scrolling, and avoiding the use of long grids. If individuals did not answer a question, they were prompted once to answer with the statement “Your answer is important to us. Please put your best guess.” However, participants were not forced to answer any items.

The median time for survey completion was 20 minutes, and participants received \$15 for their participation. This study was approved by the University of Pittsburgh IRB and was granted a Certificate of Confidentiality from NIH.

Measures

Participants completed online survey items including measures of PSI (dependent variable), SMU (independent variable), and covariates.

PSI was assessed using a four-item scale developed by the Patient-Reported Outcomes Measurement Information System (PROMIS). PROMIS is an NIH Roadmap initiative that aims to provide precise, valid, reliable, and standardized questionnaires measuring patient-reported outcomes across the domains of physical, mental, and social health.²⁴ The PROMIS social isolation scale was developed using item response theory to promote precision and decrease respondent burden.^{25–27} Additionally, the PROMIS social isolation scale has been correlated with and validated against other commonly used social isolation measures.^{28,29} The social isolation scale assesses perceptions of being avoided, excluded, detached, disconnected from, or unknown by others. The specific items ask participants how frequently in the past 7 days they had felt: *I feel left out*; *I feel that people barely know me*; *I feel isolated from others*; and *I feel that people are around me but not with me*. These items were scored on a 5-point Likert scale ranging from 1 to 5, corresponding to responses of *never*, *rarely*, *sometimes*, *often*, and *always*. Thus, with four items, each scored from 1 to 5, raw scores for PSI ranged from 4 to 20. Though PROMIS refers to the scale as assessing overall social isolation, it is clear from the structure of the items and their openings

I feel ... that the primary construct assessed by the scale is perceived (i.e., not objective) social isolation.

The continuous PSI data were non-normal and not amenable to transformation into normally distributed data. Therefore, raw scores were collapsed into tertiles of “low,” “medium,” and “high” for analysis. This was appropriate because one of the specific aims of the PROMIS social isolation scale is to grade its severity instead of merely providing a dichotomous cut off. Similarly, because there is no established clinical cut off for social isolation, groups were divided into approximate tertiles using the appropriate function in Stata, version 13.1, rather than basing the categories on specific numbers. Thus, all participants were categorized as having low, medium, or high social isolation, which represented 39%, 31%, and 30% of the sample, respectively. Low, medium, and high social isolation corresponded to raw scores of 4–6, 7–10, and ≥ 11 , respectively. The scale exhibited excellent internal consistency reliability (Cronbach’s α , 0.92).

Participants’ SMU was assessed in two complementary ways: time and frequency of use. First, participants were asked to estimate time spent on social media for personal use. This item specifically instructed participants not to count any time spent on social media for work. Participants provided estimates in numerical fields for hours and minutes on an average day. Second, participants were asked to report frequency of their use of each of 11 widely used social media platforms, including Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram, Pinterest, Tumblr, Vine, Snapchat, and Reddit.^{14,30} Seven response choices ranged from *I do not use this platform* to *I use this platform 5 or more times a day*. These items were based on the measures used by Pew Internet Research.¹⁴ Using weighted averages based on the frequency responses, social media site visits per week were computed. To improve interpretability of results, all independent variables were collapsed into quartiles for primary analyses. To ensure robustness of results, all analyses were also conducted with independent variables as continuous.

For analysis, the sample was divided into three age groups based on the distribution of data. Race/ethnicity were grouped into five mutually exclusive categories. Other environmental and personal factors that may affect SMU and PSI were also assessed; these factors included relationship status, living situation, household income, and education level.^{14,31}

Statistical Analysis

All participants who had complete data on the PROMIS social isolation scale and the social media items were included. Because only about 1% of participants had missing data for these variables, this did not affect results. Percentages were computed for the dependent variable, the two independent variables (time and frequency of SMU), and the seven covariates. Next, chi-square tests were used to determine bivariable associations between each of the independent variables and covariates and PSI.

After confirming that the proportional odds assumption was met, ordered logistic regression was used to examine associations between each social media variable and PSI. All covariates were included in primary multivariable models. To take advantage of the nationally representative data, all primary analyses were conducted using survey weights that took into account sex, age, race/ethnicity, education, household income, Census region, metropolitan area, and Internet access. Similar regression analyses

examined whether there was an overall linear trend between each ordered categorical independent variable and the dependent variable.

Three sets of sensitivity analyses were also conducted to examine the robustness of results. First, all analyses were repeated with independent variables as continuous instead of ordered categorical. Second, all analyses were conducted using only covariates that had a bivariable association of $p < 0.15$ with the outcome. Third, all analyses were conducted without survey weights. Results from all sensitivity analyses showed similar levels of significance and magnitude to the primary analyses described here.

Statistical analyses were performed in 2015 with Stata, version 13.1, and two-tailed p -values < 0.05 were considered significant.

RESULTS

A total of 1,787 participants completed the questionnaire. The weighted sample was 50.3% female, 57.5% white, 13.0% African American, 20.6% Hispanic, and 8.9% biracial/multiracial or other. Of these, slightly more than half (55.6%) were in a committed relationship and approximately a third (35.6%) reported living with a significant other. In terms of household income, 22.9% were in the “low” category ($< \$30,000$) and 38.7% were in the “high” category ($\geq \$75,000$). About one third (36.0%) of participants had not attended any college, whereas a quarter (25.7%) had a BA or higher (Table 1). There were no differences between responders and non-responders in terms of age ($p=0.12$); sex ($p=0.07$); or race ($p=0.21$).

Accounting for survey weights, PSI was classified as low, medium, and high among 42%, 31%, and 27% of participants, respectively. Median total time on social media was 61 minutes per day (interquartile range, 30–135). Median social media site visits per week across all platforms was 30 (interquartile range, 9–57). Only 58 individuals (3.2%) reported zero site visits per week.

There were significant bivariable associations between PSI and each of the primary SMU variables. Compared with those who used social media < 30 minutes per day, those who used social media ≥ 121 minutes per day had about double the odds for increased PSI (OR=2.0, 95% CI=1.4, 2.8) (Table 2). Similarly, compared with those who visited social media platforms fewer than nine times per week, those who visited ≥ 58 times per week had about triple the odds of increased PSI (OR=3.4, 95% CI=2.3, 5.0) (Table 3).

Bivariable analyses also showed significant associations between PSI and two covariates: relationship status and yearly household income (Tables 1 and 2). Compared with single individuals, married individuals had lower odds of having higher PSI (Table 2). Similarly,

Table 1. Social Media Use and Sociodemographic Characteristics According to Perceived Social Isolation: 2014 U.S. Survey

Independent variables	Whole sample, column % ^a	Low PSI, column % ^a (n=699)	Medium PSI, column % ^a (n=549)	High PSI, column % ^a (n=537)	p-value ^b
Social media use					
Time, minutes/day					0.002
Quartile 1 (0–30)	29.8	35.4	28.2	22.3	
Quartile 2 (31–60)	20.8	21.8	23.2	16.3	
Quartile 3 (61–120)	24.0	22.8	21.0	29.6	
Quartile 4 (≥121)	25.5	20.1	27.6	31.9	
Frequency, visits per week ^{c,d}					< 0.001
Quartile 1 (0–8)	28.3	37.7	23.8	18.2	
Quartile 2 (9–30)	25.1	23.6	30.1	21.3	
Quartile 3 (31–57)	24.1	22.3	26.5	24.1	
Quartile 4 (≥58)	22.5	16.4	19.6	36.4	
Sociodemographic					
Age, years					0.09
19–23	33.7	32.9	33.7	34.8	
24–26	24.8	21.6	30.5	23.1	
27–32	41.6	45.5	35.9	42.1	
Sex					0.07
Female	50.3	45.7	55.0	52.2	
Male	49.7	54.3	45.0	47.8	
Race					0.06
White, non-Hispanic	57.5	58.1	56.7	57.3	
Black, non-Hispanic	13.0	15.3	9.9	12.9	
Hispanic	20.6	21.4	20.4	19.6	
Other ^e	8.9	5.2	13.0	10.2	
Relationship status					< 0.001
Single/widowed/divorced	44.5	36.1	50.6	51.0	
Married/committed relationship	55.6	63.9	49.4	49.0	
Living situation					0.003
Parent/guardian	34.0	34.5	33.5	33.8	
Significant other	35.6	41.4	27.9	35.4	
Other ^f	30.4	24.1	38.5	30.9	
Yearly household income, \$					0.003
< 30,000	22.9	18.8	20.5	32.7	
30,000–74,999	38.4	40.8	41.2	31.2	
≥ 75,000	38.7	40.5	38.3	36.1	
Education level					0.95
High school or less	36.0	36.7	34.6	36.3	
Some college	38.3	37.0	39.8	38.8	
Bachelor's degree or higher	25.7	26.3	25.6	25.0	

Note: The sample size was N=1,785.

^aValues may not total 100 due to rounding. Column percentages are based upon survey weighted data, therefore may not be congruent with the cell frequency proportion of total N.

^bp-value derived using chi-square analyses comparing proportion of users in each category.

^cIncludes Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram, Pinterest, Tumblr, Vine, Snapchat, and Reddit.

^dBased on weighted averages using a 7-point Likert-type response scale ranging from “I don't use this platform” to “5 or more times a day.”

^eIncludes multiracial.

^fDefined as not living with a parent/guardian or significant other.

PSI, perceived social isolation.

compared with those who earned <\$30,000 per year, those earning >\$75,000 had lower odds of increased PSI (Table 2).

In a fully adjusted model, compared with those in the lowest quartile, participants in the highest quartile of time of SMU had significantly greater odds of increased

Table 2. Associations Between Time of Social Media Use and Perceived Social Isolation: 2014 U.S. Survey

Social media use	PSI, ^a AOR (95% CI)	p-value ^b	PSI, ^a AOR ^c (95% CI)	p-value ^b
Time, minutes/day ^d		< 0.001		< 0.001
Quartile 1 (0–30)	ref		ref	
Quartile 2 (31–60)	1.2 (0.8, 1.7)		1.2 (0.9, 1.7)	
Quartile 3 (61–120)	1.7 (1.2, 2.5)		1.6 (1.1, 2.4)	
Quartile 4 (≥ 121)	2.0 (1.4, 2.8)		2.0 (1.4, 2.8)	
Age, years		0.37		0.83
19–23	ref		ref	
24–26	1.1 (0.8, 1.4)		1.1 (0.8, 1.6)	
27–32	0.9 (0.6, 1.2)		1.0 (0.7, 1.4)	
Sex				
Female	ref		ref	
Male	0.8 (0.6, 1.02)		0.9 (0.7, 1.1)	
Race				
White, non-Hispanic	ref		ref	
Black, non-Hispanic	0.8 (0.5, 1.3)		0.6 (0.4, 1.1)	
Hispanic	1.0 (0.7, 1.4)		0.8 (0.5, 1.2)	
Other ^e	1.6 (1.1, 2.4)		1.4 (0.9, 2.1)	
Relationship status				
Single/widowed/divorced	ref		ref	
Married/committed relationship	0.6 (0.5, 0.8)		0.6 (0.4, 0.8)	
Living situation				
Parent/guardian	ref		ref	
Significant other	0.8 (0.6, 1.2)		1.3 (0.8, 2.0)	
Other ^f	1.3 (0.9, 1.7)		1.2 (0.8, 1.6)	
Yearly household income, \$		0.01		0.01
< 30,000	ref		ref	
30,000–74,999	0.6 (0.4, 0.8)		0.6 (0.4, 0.8)	
≥ 75,000	0.6 (0.4, 0.9)		0.6 (0.4, 0.8)	
Education level		0.95		0.55
High school or less	ref		ref	
Some college	1.1 (0.8, 1.5)		1.1 (0.8, 1.6)	
Bachelor's degree or higher	1.0 (0.7, 1.4)		1.1 (0.8, 1.6)	

Note: Boldface indicates statistical significance ($p < 0.05$).

^aPerceived social isolation is divided into low, medium, and high tertiles.

^bSignificance level determined by post-estimate tests for an overall linear trend of an ordered categorical independent variable. Therefore, these values are not applicable in the case of a non-ordered categorical variable such as race or living situation.

^cAdjusted for age, sex, race, relationship status, living situation, household income, and education level.

^dIncludes Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram, Pinterest, Tumblr, Vine, Snapchat, and Reddit.

^eIncludes multiracial.

^fDefined as not living with a parent/guardian or significant other.

PSI, perceived social isolation.

PSI (AOR=2.0, 95% CI=1.4, 2.8) (Table 2). This association showed a strong linear effect ($p < 0.001$) (Table 2). The only other variables significantly associated with PSI in the multivariable model were relationship status and yearly household income (Table 2).

In a second fully adjusted model, compared with those in the lowest quartile, participants in the highest quartile of frequency of SMU had significantly greater odds of increased PSI (AOR=3.4, 95% CI=2.3, 5.1) (Table 3). This association also showed a strong linear effect ($p < 0.001$) (Table 3). Again, the only other variables significantly

associated with PSI were relationship status and yearly household income (Table 3).

DISCUSSION

Among a nationally representative cohort of individuals aged 19–32 years, there were robust linear associations between increased SMU and increased PSI, even after adjusting for a comprehensive set of covariates.

Because the data were cross-sectional, the directionality of this association cannot be determined based on

Table 3. Associations Between Frequency of Social Media Use and Perceived Social Isolation: 2014 U.S. Survey

Social media use	PSI, ^a OR (95% CI)	p-value ^b	PSI, ^a AOR ^c (95% CI)	p-value ^b
Frequency, visits per week ^{d,e}		< 0.001		< 0.001
Quartile 1 (<9)	ref		ref	
Quartile 2 (9–30)	1.8 (1.3, 2.5)		1.8 (1.3, 2.6)	
Quartile 3 (31–57)	1.9 (1.3, 2.8)		1.9 (1.3, 2.8)	
Quartile 4 (≥58)	3.4 (2.3, 5.0)		3.4 (2.3, 5.1)	
Age, years		0.37		0.63
19–23	ref		ref	
24–26	1.1 (0.8, 1.4)		1.2 (0.9, 1.7)	
27–32	0.9 (0.6, 1.2)		1.1 (0.8, 1.6)	
Sex				
Female	ref		ref	
Male	0.8 (0.6, 1.02)		0.8 (0.7, 1.1)	
Race				
White, non-Hispanic	ref		ref	
Black, non-Hispanic	0.8 (0.5, 1.3)		0.7 (0.4, 1.2)	
Hispanic	1.0 (0.7, 1.4)		0.8 (0.6, 1.2)	
Other ^f	1.6 (1.1, 2.4)		1.4 (0.9, 2.1)	
Relationship status				
Single/widowed/divorced	ref		ref	
Married/committed relationship	0.6 (0.5, 0.8)		0.6 (0.4, 0.8)	
Living situation				
Parent/guardian	ref		ref	
Significant other	0.8 (0.6, 1.2)		1.2 (0.8, 1.9)	
Other ^g	1.3 (0.9, 1.7)		1.1 (0.8, 1.6)	
Yearly household income, \$		0.01		0.007
<30,000	ref		ref	
30,000–74,999	0.6 (0.4, 0.8)		0.6 (0.4, 0.8)	
≥75,000	0.6 (0.4, 0.9)		0.6 (0.4, 0.8)	
Education level		0.95		0.97
High school or less	ref		ref	
Some college	1.1 (0.8, 1.5)		1.1 (0.8, 1.5)	
Bachelor's degree or higher	1.0 (0.7, 1.4)		1.0 (0.7, 1.4)	

Note: Boldface indicates statistical significance ($p < 0.05$).

^aPerceived social isolation is divided into low, medium, and high tertiles.

^bSignificance level determined by post-estimate tests for an overall linear trend of an ordered categorical independent variable. Therefore, these values are not applicable in the case of a non-ordered categorical variable such as race or living situation.

^cAdjusted for age, sex, race, relationship status, living situation, household income, and education level.

^dIncludes Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram, Pinterest, Tumblr, Vine, Snapchat, and Reddit.

^eBased on a 7-point Likert-type response scale ranging from "I don't use this platform" to "5 or more times a day."

^fIncludes multiracial.

^gDefined as not living with a parent/guardian or significant other.

PSI, perceived social isolation.

these data alone. It may be that individuals who are already feeling socially isolated tend to subsequently use more social media; those with fewer "in-person" social outlets may turn to online networks as a substitute. For example, individuals with mental illnesses report using social media to reach out to others.³² Indeed, ecological systems theory emphasizes the fluid nature of relationship formation based on current environmental constraints.³³

Another possibility is that those who use increased amounts of social media subsequently develop increased

social isolation. Though in some ways this may seem counterintuitive, there are possible mechanisms. First, increased time spent on social media may displace more-authentic social experiences that might truly decrease social isolation. Second, certain characteristics of the online milieu may facilitate feelings of being excluded. For example, an individual may discover pictures or other evidence of events to which they were not invited. Finally, instead of accurately representing reality, social media feeds are in fact highly curated by their owners.³⁴ Exposure to such highly idealized representations of

peers' lives may elicit feelings of envy and the distorted belief that others lead happier and more successful lives, which may increase PSI.³⁵

Although this study focused on PSI, an important direction for future research will be to examine interrelationships among SMU and both subjective and objective social isolation. For example, it would be interesting to distinguish whether increased SMU—though being associated with the perception of increased isolation—may actually provide increased social opportunities that are not optimized. For example, researchers have found that many people feel they are not able to translate online interaction into “real” social relationships.³⁶ Thus, a potential avenue for public health intervention would be to help individuals leverage online interactions into more-meaningful and potentially protective relationships.

This study focused on self-reported overall time and frequency of SMU. However, it should be emphasized that not all SMU is the same, and future research should examine more-specific social media exposures. For example, some users tend to passively consume social media content whereas others engage in more active communication. It may be that those who are more active feel more engaged and derive more social capital from social media interactions.³⁷ However, it may also be that active users are more prone to having negative experiences such as arguments or being “unfriended,” both of which ultimately can feel isolating.

Although overall results suggest associations between increased SMU and increased PSI on a population level, certain individuals or groups may derive social benefit from SMU. For example, individuals with certain health conditions may find it useful to connect over social media, especially if they are geographically isolated. Prior studies have demonstrated value for these types of networks.^{38,39} Similarly, individuals with certain personality types (e.g., extroverted versus introverted) might derive more or less benefit.

Because many socially isolated people use social media, this may be a good medium for intervention. Though this study raises potential concerns, there also may be useful ways of leveraging social media to identify socially isolated individuals and helping them connect to in-person networks. Understanding the relationship between SMU and social isolation will help to ensure that these interventions are appropriately designed and provide the support necessary.

Limitations

Given the large sample size, it was not feasible to use “gold standard” measures of social media exposure such as ecological momentary assessment or data downloaded

directly from social media sites. It would be valuable for future work to use more-intensive measures of SMU, because self-reported SMU is subject to recall and social desirability biases. This might account for the fact that the estimates of SMU noted here were somewhat lower than have been reported elsewhere.⁴⁰ Related to this, it should be emphasized that these measures of SMU were composite measures including time and frequency of use of 11 different platforms. It would be useful for future work to parse out each platform individually to help hone understanding of these associations. Finally, it should be reiterated that this study focused on young adults aged 19–32 years; therefore, these results cannot be generalized to other populations, such as older adults.

CONCLUSIONS

Despite these limitations, it is noteworthy that increased SMU was strongly and independently associated with increased PSI in a nationally representative sample of young adults. As social media platforms continue to evolve, it will be valuable for future assessments use more fine-grained measurements in order for recommendations about SMU and PSI to be appropriately targeted.

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